

What is claimed is:

1. A blade support sub-assembly adapted to be used with a scraper blade for scraping and cleaning a conveyor belt and with a mounting sub-assembly, comprising:

a pair of notched receiving members, each notched receiving member having a notch formed from a front vertical stabilizer and a rear stabilizer, said notch for receiving a scraper blade, and said pair of notched receiving members adapted for use with a mounting sub-assembly;

a face plate extending between said pair of notched receiving members and about parallel to the scraper blade such that at least a portion of the scraper blade rests flush against said face plate when the scraper blade is situated in said pair of notched receiving members; and

a means for vertically adjusting the height of the scraper blade in relation to a fixed position of said pair of notched receiving members such that the scraper blade is in contact with a surface of the conveyor belt to be scraped.

2. The blade support sub-assembly according to claim 1, wherein said means for vertically adjusting the scraper blade within said notches of said pair of notched receiving members comprises a horizontal blade stabilizer approximately perpendicular to and extending beneath said face plate, and one or more adjustable lock bolts extending upward through said horizontal blade stabilizer and in communication with a bottom surface of the scraper blade, wherein rotating one said adjustable lock bolt in a first direction raises said adjustable lock bolt and the scraper blade, and rotating one said adjustable lock bolt in a second direction lowers said adjustable lock bolt and the scraper blade.

3. The blade support sub-assembly according to claim 1, further comprising a means for removably securing the scraper blade within said notches of said pair of notched receiving members.

- 1 4. The blade support sub-assembly according to claim 3, wherein said means for
2 removably securing the scraper blade comprises one or more adjustable screws.
- 1 5. The blade support sub-assembly according to claim 1, further comprising a shield
2 attached to the scraper blade, wherein said shield extends from the scraper blade and
3 over the blade support sub-assembly.
- 1 6. The blade support sub-assembly according to claim 1, wherein said rear vertical
2 stabilizer is taller in height than said front vertical stabilizer.
- 1 7. The blade support sub-assembly according to claim 1, further comprising a scraper
2 blade having a blade insert fixed within a blade housing.
- 1 8. The blade support sub-assembly according to claim 1, further comprising a means for
2 spraying a liquid on the conveyor belt.
- 1 9. The blade support sub-assembly according to claim 8, wherein said means for spraying
2 a liquid comprises a pipeline, for transporting a liquid, having one or more nozzles,
3 a means for restricting a flow of the liquid through said pipeline, and a means for
4 securing said pipeline and said one or more nozzles in proximity to the blade support
5 sub-assembly.
- 1 10. The blade support sub-assembly according to claim 9, further comprising a shield,
2 having one or more holes, attached to the scraper blade, wherein said shield extends
3 from the scraper blade and over the blade support sub-assembly, wherein each of said
4 one or more nozzles of said pipeline aligns with and extends through one of said one
5 or more holes in said shield.
- 1 11. The blade support sub-assembly according to claim 9, wherein said shield is attached
2 to a front of the scraper blade such that the liquid is sprayed at a point on a conveyor
3 belt ahead of the scraper blade.

1 12. The blade support sub-assembly according to claim 9, wherein said shield is attached
2 to a rear of the scraper blade such that the liquid is sprayed at a point on a conveyor
3 belt behind the scraper blade.

1 13. The blade support sub-assembly according to claim 8, wherein the liquid is selected
2 from the group consisting of water, a cleaning agent, a solvent, anti-freeze, and a dust
3 inhibitor.

1 14. A torsion blade holder assembly, comprising:
2 a mounting sub-assembly comprising:
3 first hollow member having an inside diameter;
4 a second member having an outside diameter less than the
5 inside diameter of said first hollow member and wherein at least a
6 portion of said second hollow member is situated within said first
7 hollow member such that a volume of space separates said first hollow
8 member from said second hollow member;
9 torsion elements situated in the plurality of spaces between said
10 first hollow member and said second member thereby resiliently
11 restricting rotation of said second member within said first hollow
12 member; and
13 a blade support sub-assembly according to claim 1.

1 15. The torsion blade holder assembly according to claim 14 further comprising a means
2 for removably securing the scraper blade within said pair of notched receiving
3 members.

1 17. The torsion blade holder assembly according to claim 14, further comprising a shield
2 attached to the scraper blade, wherein said shield extends from the scraper blade and
3 over the blade support member.

1 18. The torsion blade holder assembly according to claim 14, wherein said first hollow
2 member has rounded edges.

1 19. The torsion blade holder assembly according to claim 14, further comprising a means
2 for spraying a liquid.

1 20. The torsion blade holder assembly according to claim 19, wherein said means for
2 spraying comprises a pipeline for transporting a liquid having one or more nozzles, a
3 means for restricting a flow of the liquid through said pipeline, and a means for
4 securing said pipeline and said one or more nozzles in proximity to the blade support
5 sub-assembly.

1 21. A blade support sub-assembly adapted to be used with a scraper blade for scraping and
2 cleaning a conveyor belt and with a mounting sub-assembly, comprising:

3 a pair of notched receiving members, each notched receiving member having
4 a notch formed from a front vertical stabilizer and a rear stabilizer, said notch for
5 receiving a scraper blade, and said pair of notched receiving members adapted for use
6 with a mounting sub-assembly;

7 a face plate extending between said pair of notched receiving members and
8 about parallel to the scraper blade such that at least a portion of the scraper blade rests
9 flush against said face plate when the scraper blade is situated in said pair of notched
10 receiving members; and

11 a means for spraying a liquid on the conveyor belt.

1 22. The blade support sub-assembly according to claim 21, wherein said means for
2 spraying a liquid comprises a pipeline, for transporting a liquid, having one or more
3 nozzles, a means for restricting a flow of the liquid through said pipeline, and a means
4 for securing said pipeline and said one or more nozzles in proximity to the blade
5 support sub-assembly.

1 23. The blade support sub-assembly according to claim 21, further comprising a shield,
2 having one or more holes, attached to the scraper blade, wherein said shield extends
3 from the scraper blade and over the blade support sub-assembly, wherein each of said
4 one or more nozzles of said pipeline aligns with and extends through one of said one
5 or more holes in said shield.

1 24. The blade support sub-assembly according to claim 23, wherein said shield is attached
2 to a front of the scraper blade such that the liquid is sprayed at a point on a conveyor
3 belt ahead of the scraper blade.

1 25. The blade support sub-assembly according to claim 23, wherein said shield is attached
2 to a rear of the scraper blade such that the liquid is sprayed at a point on a conveyor
3 belt behind the scraper blade.

1 26. The blade support sub-assembly according to claim 21, wherein the liquid is selected
2 from the group consisting of water, a cleaning agent, a solvent, anti-freeze, and a dust
3 inhibitor.

1 27. A method for vertically adjusting a scraper blade in a blade support member,
2 comprising the steps of:

3 (a) positioning a scraper blade within a pair of notched receiving members,
4 each notched receiving member having a notch formed from a front vertical stabilizer
5 and a rear stabilizer, said notch for receiving the scraper blade, and said pair of
6 notched receiving members adapted for use with a mounting sub-assembly;

7 (b) vertically adjusting the height of the scraper blade in relation to a fixed
8 position of said pair of notched receiving members such that the scraper blade is in
9 contact with a surface of the conveyor belt to be scraped; and

10 (c) scraping the conveyor belt with the scraper blade.

1 28. The method according to claim 27, further comprising a face plate extending between
2 said pair of notched receiving members and about parallel to the scraper blade such
3 that at least a portion of the scraper blade rests flush against said face plate when the
4 scraper blade is situated in said pair of notched receiving members, and a horizontal
5 blade stabilizer approximately perpendicular to and extending beneath said face plate,
6 and one or more adjustable lock bolts extending upward through said horizontal blade
7 stabilizer and in communication with a bottom surface of the scraper blade, such that
8 said step (b) comprises rotating one or more of said adjustable lock bolts, wherein
9 rotating one said adjustable lock bolt in a first direction raises said adjustable lock bolt
10 and a portion of the scraper blade, and rotating one said adjustable lock bolt in a
11 second direction lowers said adjustable lock bolt and the portion of the scraper blade.

12 29. The method according to claim 27, further comprising the step of:

13 (d) spraying the conveyor belt with a liquid either just prior to or
14 immediately after said step (c).

15 30. A method for cleaning a conveyor belt, comprising the steps of:

16 (a) positioning a scraper blade with a shield within a pair of receiving
17 members such that the scraper blade is in contact with a surface of the conveyor belt
18 to be cleaned, each receiving member having a means for securing the scraper blade
19 and said pair of receiving members adapted for use with a mounting sub-assembly;

20 (b) spraying the surface of the conveyor belt to be cleaned with a liquid,
21 the liquid being transported through a pipeline and emitting from one or more nozzles
22 protruding through said shield of the scraper blade; and

23 (c) scraping the conveyor belt with the scraper blade.